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Public-private partnerships for infrastructure: Lessons learned from Dutch and Flemish PhD-theses

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In recent years, a considerable number of PhD-dissertations have appeared in the Netherlands and Flanders (Belgium) on Public-Private Partnerships (PPPs) for the provision of public infrastructures such as transport infrastructure and public buildings. These PhD-theses provide valuable insights into how PPPs perform and especially into the conditions that influence their performance. We identified four clusters of relevant conditions: (1) public procurement procedures, (2) contract management, (3) transaction costs, and (4) democratic legitimacy and accountability. By discussing the theses in this article, their lessons learned become available for the international PPP-community. Our analysis of the PhD-theses shows that there are no definite arguments for or against the use of PPPs. The performance of PPP-arrangements depends on agency: on the skills and commitment of parties involved and on the way in which the arrangements are applied. The dissertations show that policymakers have to find ways to balance the need to reduce transaction costs through contract standardization with the need for tailor-made solutions in specific projects. Furthermore, the dissertations show that 'soft' contract management aspects, such as the quality of collaborative behavior and process management, are particularly important for the performance of PPPs. Finally, the theses bring to the fore the democratic issues involved in PPPs, showing their mixed results in terms of legitimacy and accountability.

Keywords: *Design-Build-Finance-Maintenance-Operate (DBFMO) Contracts; Flanders (Belgium); Netherlands; Procurement; Public Infrastructure; Public-Private Partnerships (PPPs).*

1. Introduction

Public-Private Partnerships (PPPs) continue to attract considerable attention worldwide as a governance model for public service delivery, with both supporters and critics taking part in the debate. Supporters argue, inter alia, that through PPPs, governments can benefit from private sector capacities and resources, leading to better performance in terms of increased quality of public infrastructure services, for lower prices, and with faster delivery times. Critics warn,

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however, that many PPPs, especially those where the delivery of public infrastructure services is outsourced to the private sector, suffer from a lack of transparency and accountability, and that they oftentimes do not achieve value-for-money (cf. Reeves, 2015; Siemiatycki, 2015).

The current debates and expectations of PPPs are gradually catching up with the reality of their performance. Graeme Hodge and Carsten Greve, two leading PPP-scholars, already argued a decade ago that “greater care is needed to strengthen future evaluations” and that assessments of PPP evidence on performance need to be conducted “away from the policy cheerleaders” (2009). They recently reiterated this concern (Hodge and Greve, 2017). Given the continued interest of politicians and policymakers in the use of PPPs, and given the need to reflect upon and reorient the ways in which the public and private sectors can collaborate to the benefit of both, it is equally important to investigate not just if PPPs are performing well, but also what conditions influence performance and how PPPs can be made to perform better.

Clearly, this first requires clarification of how performance can be defined. After all, important underlying reasons for the continued debate on the success and failure of PPPs, and in particular of the long-term infrastructure contract as exemplified by the U.K.’s Private Finance Initiative (PFI), are the different perceptions on how performance should be defined and measured (Hodge and Greve, 2007; 2009; 2017; Jeffares et al., 2013). We touch upon this issue in the present article. However, this article primarily focusses on the second and at least equally important question of which conditions can improve the performance of PPPs (cf. Hodge et al., 2010). The aim is to contribute to the knowledge on what conditions influence PPP-performance and how performance can be improved. We do this by reviewing a recent wave of dissertations on PPPs from the Netherlands and Flanders (Belgium), both countries with well-developed PPP-policies and extensive experiences with PPPs (Roumboutsos, 2016).

We found that in the period 2012-2015, a total of fourteen PhD-dissertations on PPPs were defended in the Netherlands and Flanders (Hueskes et al., 2016). This wave of PPP-research provides us with the unique opportunity to take stock of the state-of-the-art of PPP-practices and -research in the Dutch-speaking part of the Low Countries: the Netherlands and Flanders (Belgium). We do not aim to offer a detailed account of all of the theses’ specific conclusions and lessons, but instead focus on their common threads. The remainder of this article is structured as follows. First, a short introduction on the PPP-research in the Netherlands and Flanders is provided, in the context of PPP-research and -practice internationally (Section 2). This is followed by our selection of the PhD-theses and their main characteristics (Section 3). Then, we discuss the findings regarding the performance of PPP-projects (Section 4) and, importantly, the four clusters of underlying conditions that influence performance, which the comparison of the theses advanced (Section 5). The clusters are: (1) public procurement procedures, (2) management of contracts, (3) contracting and tendering, and (4) democratic legitimacy and accountability. The article ends with conclusions and reflections in Section 6.

2. Background: PPPs in the Low Countries

Some Dutch and Flemish PPPs were launched back in the 1990s, but the bulk of PPP-projects took off from 2005 onwards. This is particularly true for long-term contractual partnerships such as Design-Build-Finance-Maintain-Operate (DBFMO), which were initiated in Belgium and the Netherlands much later than in the U.K. (Klijn, 2009; Klijn et al., 2007; Van den Hurk and Verhoest, 2013; Willems et al., 2018). The substantial number of PPPs initiated in the Netherlands and Belgium at the beginning of the twenty-first century, combined with the need, expressed by scholars and practitioners alike, to evaluate these ‘new’ Belgian and Dutch PPPs, may have contributed to the wave of PhD-dissertations that were recently completed and published. The areas and topics that these theses cover provide us with insights into the PPP-landscape in the Netherlands and Belgium.

Most of the fourteen dissertations define PPPs in accordance with Hodge and Greve's (2007) definition of long-term infrastructure contracts, which implies "specification of outputs in long-term legal contracts." Empirically, the dissertations examine predominantly DBFM(O) projects. DBFM(O)-contracts represent one of the two main strands of PPPs in the Low Countries. This strand refers to a *concessional* or *contractual* PPP-model – with a DBFO (Design-Build-Finance-Operate) or DBFMO-contract (Bult-Spiering and Dewulf, 2006; Grimsey and Lewis, 2004; Yescombe, 2007). DBFM(O)-contracts are increasingly being applied in transportation infrastructure. They closely resemble the PPP-contracts that can be found in the U.K.'s PFI-program (Klijn et al., 2007). This strand of PPP-projects embodies the Anglo-Saxon tradition in PPPs, that has taken root in the Low Countries.

Alternatively, other dissertations (also) investigated infrastructure projects that are based on alliances instead of long-term infrastructure contracts (#D3; #D6; see Table 1). Alliances and joint-ventures represent the second strand of PPPs in the Low Countries, often referred to as the *collaborative* or *institutional* PPP-model. Generally, applications of the collaborative model are not common in transport infrastructure projects, where instead the DBFM-contract is preferred, but they are the standard form of PPP for area development projects (Verhees, 2013). In contrast to the contractual model, alliances and joint ventures focus on risk sharing and the pursuit of a common goal by the partners. Also, certain tasks and responsibilities, such as stakeholder management, can be taken on jointly. The collaborative PPP-model embodies the Rhineland tradition in PPPs, which can be found especially in the Netherlands. More detailed discussions of the two models are provided by, for example, Da Cruz and Marques (2012), Cruz and Marques (2011), and Edelenbos and Klijn (2009).

Some dissertations also compared DBFM(O) projects with short-term Design-Build (DB) infrastructure projects (#D1; #D4; #D7; #D14; see Table 1). DB-contracts are generally not considered PPPs (Yescombe, 2007; 2013), although they may contain elements from the collaborative PPP-model, e.g. in the form of shared responsibilities for stakeholder management (see e.g., Verweij et al., 2017).

Since Dutch and Belgian PPP-contracts are often heavily inspired by the U.K. practices as developed in the context of the PFI-program, which has become the international standard for PPP-contracts in large parts of the world, we argue that the findings of the PhD-theses are relevant beyond the Dutch and Belgian borders (see Hodge et al., 2010; Koppenjan and De Jong, 2017). The PFI-program was introduced in the U.K. in the early 1990s and has played a pioneering role in the development of PPPs in various countries. It has undergone various updates, but the use of long-term DBFMO-contracts as the default practice in the procurement and management of public infrastructures, such as transportation infrastructure and public buildings, has remained largely unchallenged. The DBFMO-model has evolved into an important standard of PPP-practice worldwide (e.g., Yescombe, 2007). Amongst other countries, Australia, New Zealand, Canada, South Africa, Finland, and also the Netherlands and Belgium, have set up programs that build on the U.K.'s PFI-program, using DBFM(O)-contracts.

Despite the uncertainties about their performance, politicians and policymakers continue to regard DBFMO-contracts as a desirable model for the delivery of public infrastructure services (e.g., European PPP Expertise Centre, 2015; HM Treasury, 2012). Until recently, this also seemed to be the case in the Netherlands and Belgium. PPPs used to be particularly popular as a way of mobilizing private resources (Netherlands) or off-balance-sheet financing (Belgium). However, motivations for PPPs have evolved over the years. In the Netherlands, the former government [November 2012 – October 2017] recently stated that "for optimal use of available resources and to promote entrepreneurship and innovation, [they] are committed to Public-Private Partnerships in infrastructure development" (Rutte and Samson, 2012). Likewise, the Dutch Ministry of Infrastructure and Environment strongly looks to PPPs for the realization of "added or surplus value", i.e., value that would not be possible without private sector involvement (Ministerie van

Infrastructuur en Milieu, 2012; Rijkswaterstaat, 2014; Rijkswaterstaat et al., 2016). In spite of these expectations, some large PPP-projects have experienced serious conflicts between the public and private partners about, e.g., risks and responsibilities for the cost overruns incurred. This has led to the so-called 'New Market Vision' initiative, aimed at improving the quality of collaboration in PPP-projects (Rijkswaterstaat, 2015; Rijkswaterstaat et al., 2016). Although PPP remains the default way of working, debates on whether DBFM(O)-contracts are indeed the best way forward are now more prominently taking place (Koppenjan and De Jong, 2017). In Belgium, the prospect of surplus value is also taking root as one of the main drivers for governments to opt for PPPs (Van Gestel et al., 2014; Verhoest et al., 2016). Similar to the Netherlands, after several setbacks and growing critique, PPP-projects are continued but a strategic reorientation is taking place, where the focus is shifting towards societal surplus value and cross-sector collaboration and away from a sole focus on off-balance-sheet financing and financial added value (Willems et al., 2018).

3. Collection and categorization of the dissertations

3.1 Data collection

For the collection of the PhD-theses from the Netherlands, we used the database NARCIS – the main Dutch portal for accessing scientific information (see <http://www.narcis.nl>) – to identify all dissertations on PPPs. For the collection of the PhD-theses from Flanders, we used the database FRIS, which is the scientific research portal for Flanders (see <http://www.researchportal.be>). We used the search terms “Public-Private Partnership” and the Dutch “Publiek-Private Samenwerking” as well as their abbreviations “PPP”/“PPPs” and the Dutch “PPS”. We observed a considerable increase of theses from 2012 onwards (Hueskes et al., 2016). To ensure inclusiveness, the search was complemented with inquiries among PPP-scholars in Flanders and the Netherlands from our research networks. This resulted in the identification and selection of fourteen theses. Table 1 provides an overview of the dissertations.

To arrive at a comprehensive discussion, the dissertations were assessed in several steps. First, we read the executive summaries of the PhD-theses as well as – in the case that they concerned article-based theses – the abstracts of the separate chapters within the dissertations. Second, we wrote semi-structured summaries of the PhD-theses and subsequently organized them in a data matrix. We then compared them on ten different characteristics including funding source, research questions, methodology, theoretical assumptions and background, main findings, and main recommendations. We found that – because of their variety in terms of funding, research disciplines, research questions and theories, and methodology – the theses were quite dissimilar regarding findings and recommendations. At the same time, the number of theses is quite low. Therefore, as the third step, we opted for a more inductive approach and used the summaries, the data matrix, and a deeper reading of the theses, to draft an initial clustering of theses that addressed similar topics. Fourth, we presented our short descriptions of the PhD-theses in-brief to the theses' authors and collected their feedback. Finally, the main findings and recommendations were clustered into four themes: (1) public procurement procedures, (2) management of contracts, (3) contracting and tendering, and (4) democratic legitimacy and accountability.

Table 1. Overview of the PhD-dissertations included in the review

#D	Year	Author	Research topic	Research methods
#D1	2012	Hoezen	Public-private negotiations and commitments in the Competitive Dialogue procedure	Policy analysis; survey (n=16); comparative multiple case study; single case study
#D2	2012	Lousberg	Interventions to prevent dysfunctional conflicts in PPPs	Explorative case study; laboratory experiment; multiple case study (n=10)
#D3	2013	Eversdijk	Political decision-making about PPPs	Document analysis; multiple case study (n=6)
#D4	2013	Lenferink	Market involvement in integration of the road infrastructure planning process	Four different multiple case studies (n=4/5)
#D5	2013	Sanders	Legitimacy in policy- and decision-making on PPPs in the energy sector	Three single case studies
#D6	2013	Verhees	Adaptive planning in PPPs	Literature study; multiple case study (n=3)
#D7	2014	De Schepper	Success factors of PPPs, focusing on the role of stakeholder management and transaction costs	Multiple case study (n=4); statistical analyses (n=172)
#D8	2014	Reynaers	Safeguarding public values in PPPs	Multiple case study (n=4)
#D9	2014	Willems	Democratic accountability in PPPs	Single case study
#D10	2015	Aerts	Knowledge transfer and management in PPPs	Multiple case study (n=4); multiple case study (n=2); non-parametric statistical analysis
#D11	2015	De Clerck	The tender process in PPPs	Game-theoretic computer simulation experiments
#D12	2015	Leendertse	Market involvement in the management and development of public infrastructure networks	Single case study
#D13	2015	Van den Hurk	Standardizing contracts in PPPs	Two single case studies
#D14	2015	Verweij	Management of PPPs after contract close	Two singles case studies; Qualitative Comparative Analysis (QCA) (n=27)

3.2 Characteristics of the PhD-theses: theories used

The dissertations appeared mainly in the fields of Public Administration, Political Science, and Spatial (Transport) Planning. Regarding the theoretical fields that the studies built on to study the conditions underlying PPP-performance, a first group of dissertations mainly applied economically-oriented theories, such as principal-agent theory and transaction costs theory. A second group mainly drew from literature on governance, complex decision-making, and process management, often supplemented with literature on project management and PPPs. Besides this general palette of theories, also contributions from strategic management, knowledge transfer, stakeholder management, conflict management and negotiation, legal-political theory, and social-psychology surfaced. All in all, the theoretical approaches used in the dissertations seem to be in accordance with how PPPs are generally being studied in the international PPP-literature, particularly in the two broad disciplines of Public Administration and Urban (Transport) Studies (cf. De Castro e Silva Neto et al., 2016; Marsilio et al., 2011).

What sets some of the PPP-dissertations apart from their peers is the use of concepts stemming from system and complexity theories. Bovaird already recognized two decades ago that “partnerships [...] have some self-organizing characteristics and may behave as complex adaptive systems (Bovaird and Sharifi, 1998, in Bovaird, 2004). Some PhD-theses suited the action to the word and studied PPPs from a complexity theoretical perspective. Verhees (#D6) conceptualized PPP-projects as complex adaptive systems which cannot be managed by (traditional) contracts alone and which require forms of adaptive management. Alternatively, Leendertse (#D12) viewed the infrastructure construction sector as a whole as a complex adaptive system. He conceptualized PPP-projects as transactions that impact upon the nature, management, and governability of the physical infrastructure network, e.g., regarding the availability of informed and committed partners on the long-term. Verhees (#D6) and Leendertse (#D12) used complexity theories to focus on the ‘how-question’ of performance: from a complex systems perspective, how are PPPs most effectively managed and designed? In contrast, Verweij (#D14) also drew from complexity theory, but primarily to articulate the implications of understanding PPPs as complex systems for their evaluation, stressing that PPP-evaluation requires methodologies that allow for the analysis of more complex causal relationships.

3.3 Characteristics of the PhD-theses: methods used

Regarding the methodological orientations, the majority of recent Dutch and Flemish PhD-research on PPPs is qualitative of nature, relying mostly on case studies (see Table 1). Both single case studies as well as comparative case studies are used. Although in some of the dissertations a larger number of cases were studied (#D2; #D14), the number of cases is often quite low, ranging from one to six. Although case studies prevailed, in some theses also quantitative methods were used, including surveys (#D1), statistical analysis (#D7; #D10), and simulations (#D11). The focus on case studies in PPP-research is not specific to the Netherlands and Flanders; it seems characteristic to the wider international literature on PPPs (see e.g., Tang et al., 2010). Table 1 provides a more detailed overview.

4. The performance of Dutch and Flemish PPPs

4.1 Theoretical views on performance

Before discussing the dissertations’ insights into the performance of PPPs, it is important to briefly reflect on the notion of performance. Usually, the performance of PPPs, and more specifically long-term DBFMO-contracts, is approached from the perspective of value-for-money. Value-for-money can be defined “as a measure of the extent to which cost savings are achieved when delivering a public infrastructure project through a PPP relative to a traditional government-led procurement approach” (Siemiatycki and Farooqi, 2012). The value-for-money of PPPs is normally assessed ex-ante, often using a Public Sector Comparator or another kind of assessment tool (Boardman and Hellowell, 2017; Grimsey and Lewis, 2005; Jeffares et al., 2013). Importantly, however, when projects are being implemented, prospected advantages may not materialize (Verweij, 2015b). The value-for-money ex-ante quite often is significantly different from the value-for-money ex-post (cf. Boers et al., 2013; Verweij, 2018a). During the implementation of projects, amongst other things, contract renegotiations and conflicts between the public and private partners may impact on the projected added value of the PPP-structure (Van Elst and Van Montfort, 2018). Therefore, as already stressed in the introduction, it is pivotal to remain critical towards the performance of PPPs (Boers et al., 2013; Hodge and Greve, 2009). Only at the end of the project lifecycle may it be possible to determine definitely whether or not the project has lived up to its expectations. In spite of such warnings, however, governments typically claim that value-for-money ambitions are realized when contracts are signed (e.g., Ministerie van Financiën, 2016).

Besides the fact that value-for-money assessments often indicate prospected instead of realized benefits, another shortcoming of using it as the concept for assessing the performance of PPPs is that it rather narrowly focusses on financial added value (Boers et al., 2013). Financial added value is a rather meager yardstick against which to assess the performance of PPP-projects, especially since the supporters of PPPs – the “policy cheerleaders” in Hodge and Greve’s words (2009, p. 33) – speak of the benefits of PPPs in a much broader sense. The Dutch Ministry of Infrastructure and Water Management, for instance, seeks to achieve “social added value” through PPPs (Rijkswaterstaat, 2014). Also in Flanders, there are increasing calls for a broader approach to added value beyond value-for-money (Willems et al., 2018). The performance of PPPs may thus refer to a far wider set of values, including expectations regarding quality which are hard to quantify (e.g., aesthetic qualities of a project), the aspirations and interests of stakeholders involved, and public values such as sustainability, safety, resilience, fairness, honesty, democratic legitimacy, and accountability (cf. European PPP Expertise Centre, 2011; Van den Hurk and Hueskes, 2017). Depending on the perspectives of stakeholders and researchers, and given the heterogeneous nature of the performance of PPPs, it is thus important to acknowledge that PPP-performance can be assessed differently (Jeffares et al., 2013; Hodge, 2010).

4.2 Analysis of performance in the PhD-dissertations

The heterogeneous nature of the concept of performance raises the question of how performance is defined in the fourteen PhD-theses. We found that the theses cover a wide variety of concepts of performance, including value-for-money, innovation (#D4), stakeholder conflict and satisfaction (#D2; #D14), transaction costs (#D7; #D11), and public values such as legitimacy, accountability, and transparency (#D5; #D8; #D9). Most clearly, however, is that the fourteen theses focus on the conditions that influence PPP-performance. Through the five steps mentioned in Section 3.1, we arrived at four clusters of conditions that impact performance.

The first group of dissertations predominantly focuses on the public procurement procedures involved in PPPs and how it impacts particularly effectiveness, efficiency, and innovation (#D1; #D4). Their main findings are discussed in Section 5.1. The second group concentrates on the management of contracts during the implementation of PPP-projects and how it impacts in particular effectiveness and stakeholder satisfaction (#D2; #D6; #D7; #D10; #D12; #D14). They are discussed in Section 5.2. The third group of dissertations focuses on contracting and procurement practices. This group of theses also addresses questions of efficiency, and more specifically transaction costs (#D7; #D11; #D13). Their main findings are discussed in Section 5.3. The fourth group of dissertations (#D5; #D8; #D9) takes a different approach to performance and focuses on the conditions that impact the democratic legitimacy and accountability of PPP-projects. They are discussed in Section 5.4. Each subsection starts with a brief introduction based on literature to set the scene, followed by the discussion of the theses’ findings.

5. Findings on the performance of Dutch and Flemish PPPs

5.1 Findings on public procurement procedures

Performance of PPPs depends, inter alia, on procurement instruments and procedures (see e.g., Boardman and Hellowell, 2017). In the procurement phase, a private partner will be selected. Theory states that if procedures are designed and managed properly, competition allows governments to select the partner with the best bid and with the best capacities for the realization and the operation of the public infrastructure. The importance of sufficient competition in tendering is not unique to PPPs. However, given the long duration of DBFM(O)-contracts, the impact of failed tendering will be felt for many years. Besides the competitive nature of procurement procedures, additional conditions impact on the effectiveness of procurement, such as the use of bid evaluation criteria (e.g., most economically advantageous tender versus lowest

price), the quality of the call for bids, early involvement of private partners, and professional clientship (Carpintero and Petersen, 2014; Koppenjan, 2005; Reeves, 2013).

What did the dissertations say about the public procurement procedures? Two of the dissertations have looked into this topic and found that PPP-procurement does not always meet the expectations. Lenferink (#D4) examined the effect of various planning lifecycle integration initiatives. His study included the evaluation of four instruments for early private involvement: market consultations, early design contests, market reconnaissance, and unsolicited proposals. These instruments concern pre-competitive (i.e., before procurement) market involvement (see also Lenferink et al., 2014). In market consultations, private actors review a process or solution predefined by the government. In early design contests, private parties are asked to develop an idea (solution) for a predefined problem. Market reconnaissance is less explorative and focuses more on the development of private concepts for a predefined problem, for which the private parties are also compensated. Unsolicited proposals are different from the other three forms of early private involvement, because here the problem is not predefined. These four instruments are used to unlock the knowledge and expertise of the private sector already early in the infrastructure project planning processes. Lenferink (#D4) concluded that, by providing opportunities for innovation and public-private collaboration, early private involvement has the potential to strengthen plan development.

Besides pre-competitive market involvement, also competitive market involvement was studied. This involves the contracting and procurement procedures themselves (Lenferink et al., 2014). Hoezen (#D1) analyzed the Dutch experiences with the Competitive Dialogue, which is an important European procurement procedure introduced by the European Commission in 2004 (European PPP Expertise Centre, 2010). Compared to other procedures, the Competitive Dialogue allows for more interaction with potential contractors through several rounds of discussion between the public procurer and the contractors participating in the bid. However, Hoezen (#D1) found that some aspects of this procurement procedure have negative side-effects. "The procedure in its early use is experienced to lead to less dialogue than intended, to more competition, to less trust and hardly any improvement on complexity or task/risk allocation. Only the actual experienced level of innovation and the price-quality ratio meet the expectations" (2012, p. 170). Lenferink (#D4) also looked into the Competitive Dialogue procedure and found that the strict coordination by the public authority, and the fact that private partners are restrained due to competition, leads to suboptimal results. Yet, both Lenferink (#D4) and Hoezen (#D1) expect that when the Competitive Dialogue procedure would be used more often, and governments and consortia get accustomed to the open discussions it involves, the procedure has a high potential to increase the innovativeness and value-for-money of PPPs.

5.2 Findings on management of contracts

Literature stresses that, during the implementation of PPP-projects, contract management is required in order to monitor and steer performance and progress of the project. Often, relationships within a PPP are considered as typical principal-agent relationships (De Palma et al., 2009; Leruth, 2012; Martimort and Pouyet, 2008). Given the fact that the agent pursues his own objectives and the principal has an information backlog, the contract is intended to align interests and to provide the agent with incentives to stick to the contract. The payment structure and the monitoring system provide the principal with instruments to control the agent (Verhoest et al., 2013). The assumptions behind a DBFM(O)-contract are that strict contract management is needed to ensure compliance with the terms and conditions that are set out in the contract. As opposed to this principal-agent perspective on contracting, in the relational governance literature it is argued that formal contracts are embedded in social relationships and that trust may function as a substitute to contracts (Poppo and Zenger, 2002; Smyth and Edkins, 2007). What did the theses find about the nature and role of management of PPPs? It is interesting to observe that most of the dissertations highlight the 'relational' or 'soft' side of the management of PPPs,

referring to the significance of collaboration and interaction for the successful development and implementation of projects.

Lousberg (#D2) showed that, to prevent dysfunctional conflicts, not only 'hard' conditions matter, such as institutional divides, budgets, and contractual obligations, but also 'soft' conditions such as behavior, culture, and the quality of relationships. Verhees (#D6) identified rigid contract management as problematic. He observed that 'unfavorable system conditions', such as the requirement to formulate detailed specifications in bidding documents and contracts, hinder flexibility and innovation. Verhees (#D6) proposed a more adaptive management style, which includes "meta-planning" aimed at 'bending system conditions' to arrive at flexible, high trust partnerships. It involves the planning or design of the framework within which the public and private partners are to collaborate, instead of detailing exactly the processes and outcomes to be achieved, which would leave less room for innovation, flexibility, and trust-building. The dissertation of Leendertse (#D12) adds to these findings by comparing strategies of public and private infrastructure providers. Public providers seek creativity and added value in contracting-out projects, using concessions and financial incentives. However, because they do this only project-wise, optimization can only be realized within projects, while it remains to be seen whether they add value to the infrastructure network as a whole (see also Lenferink et al., 2017). Leendertse (#D12) found that private contractors prefer long-term service alliances, aimed at mobilizing and safeguarding continuity, the preservation of in-depth knowledge of the system, an internal motivation to be committed, and a high-trust relationship. Whereas the Dutch and Belgian governments are focusing on DBFM(O)-contracts as the default PPP-arrangement, Leendertse's dissertation (#D12) thus emphasizes the need for and potentials of alternative forms of partnership to achieve high performance.

Whereas the theses of Lousberg (#D2), Verhees (#D6), and Leendertse (#D12) have a focus on the soft aspects of PPPs regarding the public-private relationship itself, Verweij (#D14) also points to the importance of public-private cooperation beyond the mere formal public-private contract. He found that when PPP-projects are being implemented, external stakeholder dynamics in particular require joint cooperative efforts of the partners. Based on his case study of the A15 Maasvlakte-Vaanplein DBFM-project, Verweij (#D14) also stated that the choice for a DBFM-contract might hinder an external stakeholder orientation, as a result of which the project management has difficulties in dealing with external stakeholder dynamics (see also Verweij, 2015a; Verweij et al., 2017). His findings confirm the call of De Schepper et al. (2014) for more attention to shared stakeholder responsibilities in PPPs. Knowledge sharing between the public and private partners is important here. Aerts (#D10) in fact, in his PhD-dissertation, studied knowledge management within PPP-projects as part of contract management, and found that knowledge transfer and learning take place at an individual level but that, due to principal-agent relationships and institutional fragmentation in PPP-projects and their environments, learning between partners and between projects only happens on an ad-hoc basis. We note that these findings are echoed in the international literature, raising attention to the importance of intensified and improved knowledge management, sharing, and learning in PPPs for improved performance (Boyer, 2016).

5.3 Findings on transaction costs

Transaction costs are the costs made to negotiate and enforce contracts (Williamson, 1979). Expected value-for-money to be realized with PPPs can be jeopardized by the transaction costs involved in negotiating the contract and managing its implementation (Välilä, 2005). Transaction costs are always present in PPPs, both ex-ante (during contracting and tendering) and ex-post (contract monitoring and renegotiation) (Carbonara et al., 2016; Soliño and Gago de Santos, 2016). However, excessive costs should be avoided as it reduces efficiency. Because the transaction costs involved in PPP-negotiations can be quite high, PPPs are often only considered for projects over a certain size. In the Netherlands, for instance, DBFM(O)'s are only considered for projects with a

size of at least €60 million (Ministerie van Financiën, 2013). The use of standard contracts is another solution governments are recently adopting to remedy high transactions costs (see e.g., Janssen et al., 2010). The standards primarily serve to reduce the transaction costs for the governments, but they might also benefit the private consortia participating in the bid.

We now present the findings of the theses that focused on the role of transactions costs in PPPs. These dissertations examined the causes of transaction costs, both from a private and a public perspective, and provided various suggestions for concrete policy actions. High bidding costs for contractors are seen as problematic in several theses. Based on a statistical analysis of 172 Belgian infrastructure projects, De Schepper (#D7) found that the transaction costs for private sector companies in PPP-procurement are significantly higher than in traditional procurement. The private consortia have to make large upfront investments in the tender phase, generally with few or no guarantees or compensations. De Schepper (#D7) therefore argued for a more efficient, transparent, and earlier selection of the bidders. Additionally, transaction costs can be lowered by optimizing the procurement process and by reducing the procurement time. De Clerck (#D11) in fact modeled the PPP tendering procedure using computer simulations. His model assessed procurement from the contractor's perspective, but is also closely linked to and relevant for the public sector, as "governments are looking for the most advantageous proposal from a cost and quality perspective, but also consider the competitiveness of the market in the longer and shorter term" (2015, p. 217). To secure sufficient competition in both the short- and long-term, governments have to find a balance between having enough consortia participating in a bid and offering consortia an attractive procurement environment in the long-term. After all, if the costs for contractors are too high relative to the chance of winning the bid, they might refrain from participating in a future PPP-tender. This, in turn, would endanger the competitive environment of the PPP-market in the long run. For a well-performing tendering procedure, De Clerck (#D11) argued that procurers should strive for a funneling principle, in which the contractor's expenditures are mainly postponed to the final bidding stage. In contrast to the current common practice in Belgium and the Netherlands, he recommended prequalifying only two players to move to the final bidding stages. This will reduce transaction costs. Moreover, since these two players then have a higher chance of winning the bid, they might put extra effort in preparing the tender documents. If, however, the procurer opts for a three-player setting, compensations for the bidding costs can help to ensure healthy competition in the long run (#D11).

Another issue related to transaction costs concerns the standardization of PPP-contracts and procedures. De Clerck (#D11) indeed views standardization as another solution to reduce transaction costs. However, Van den Hurk (#D13) takes a rather critical position towards this option. Van den Hurk (#D13) is not against standard contracts per se, but he found that their implementation is difficult and that it requires careful maneuvering between standard contracts and specific project needs. In his study of multiple Belgian sports facilities that were bundled into one standard PPP-contract, he observed that this led to major coordination problems and, consequently, higher transaction costs. The problem was that each of the sports facilities had individual demands and stakeholders, which were difficult to accommodate within a single bundled PPP-program. Van den Hurk (#D13) thus concluded that, even if a standard contract is used, it remains necessary to take specific project characteristics into account. Every project, to some extent, needs a tailor-made solution in the end. This complicates the use of standardized contracts and reduces their anticipated efficiency gains.

5.4 Findings on democratic legitimacy and accountability

As discussed in Section 4, PPP-performance is not necessarily about financial value only; other types of values may be identified and in need of assessment as well (Hodge, 2010; Jeffares et al., 2013). For example, PPPs may involve risks with regard to democratic accountability, legitimacy, and the safeguarding of public values and interests of external stakeholders. Although these challenges have often been mentioned in the literature (e.g., Walker and Walker, 2000; Hodge

and Greve, 2005), relatively little systematic research had existed on these topics. As a result, concepts, frameworks, and research methods required to study these issues systematically are yet relatively underdeveloped (Bozeman, 2008; Koppenjan et al., 2008; Weihe, 2008). The dissertations of Reynaers (#D8), Willems (#D9), and Sanders (#D5) in particular devoted themselves to the task of clearing the way and providing the tools for more systematic research.

In his historical reconstruction of the PPP-policy in the Netherlands, Eversdijk (#D3) had shown that the decision to use DBFM(O) as a default option has been taken without much political debate. The same is true for decision-making on PPPs for specific projects. Dutch politicians and policymakers have (had) an inclination to see PPPs as a matter of implementation. However, because PPP-arrangements have an impact on public values and the division of costs and benefits for the various stakeholders involved, seeing PPPs as mere implementation tools neglects the political implications of PPPs. PPPs involve questions of the allocation of values, accountability, and legitimacy, and therefore should be subject to political, democratic debate. The dissertations of Reynaers (#D8), Willems (#D9), and Sanders (#D5) further delved into this important matter of the democratic legitimacy of PPPs.

The PhD-dissertations show that there is no simple 'yes' or 'no' answer to the question of whether PPPs harm or promote public values. Surely, public values are under pressure (#D8; #D9) because public infrastructures are provided by private actors who are, by their very nature, driven by other values. Indeed, the risk is that collaboration between the executive branch of government and private companies may put politicians and representative bodies at a distance. However, both Reynaers (#D8) and Willems (#D9) found that PPP-projects show a mixed performance with respect to accountability and the safeguarding of public values. Willems speaks of the accountability paradox: although the Flemish PPP-schools generally perform better in terms of accountability compared to traditionally procured schools, a small number of failures fueled the image that the accountability of PPPs is problematic. Yet, the findings of Reynaers (#D8) and Willems (#D9) show that PPP-arrangements by themselves do not necessarily jeopardize legitimacy, public values, and public participation. Democratic legitimacy, accountability, and public values can be safeguarded by regulation, policy, contracts, and management, but especially by the active engagement of politicians, administrators, civil servants, and stakeholders. PPPs have the potential to combine public, private, and societal forms of representation and accountability. This finding is in line with Sanders' (#D5) conclusion that PPP is often used as a strategy to repair the shortcomings of the one-sided application of either governmental, market, or network strategies. A key finding of the dissertations is that the mixed accountability and legitimacy performances can be explained by the willingness and efforts of politicians, administrators, civil servants, and stakeholders to use the mechanisms available to them. The dissertations thus show that the democratic performance of PPPs is not an inherent characteristic of the arrangement itself, but that it depends on how the involved actors choose to behave. It is agency, rather than institutions, that makes the difference.

6. Conclusion and reflection

The Dutch and Flemish dissertations offer a rich source of empirical information about the performance of current PPP-practices in the Netherlands and Flanders (Belgium). Both countries have rather well-developed PPP-practices and -policies (Roumboutsos, 2016). By relating the theses' findings to observations in international literature on PPPs, we have tried to clarify what lessons can be learned from these studies for PPP-theory and PPP-practices in other countries. As such, this article contributes to the growing international evidence-base on PPP-performance.

Regarding limitations, we note that the methodological dominance of the small-n case study in the PhD-theses raises questions about the generalizability of results and conclusions. This is a particularly salient issue since most of the studies were empirically driven and not focused on

testing or building theories. This implies that not only the statistical generalizability but also the analytical generalizability (see e.g., Yin, 2009) of the studies may be limited. This limitation further fuels the recent calls for more careful conceptualizations of PPPs and more comparative PPP-research. Hodge, Greve, and Boardman had already stated: “although there have been comparative studies of PPPs [...], many studies still concern the development of PPPs in a single country. We now need to apply some of the comparative case-study methods in more sophisticated ways” (2010, p. 606). This calls not only for the use of systematic, formal comparative research methods such as Qualitative Comparative Analysis (QCA) (see Gerrits and Verweij, 2018) as applied by, e.g., Verweij (#D14), but also for larger n-studies and cross-country comparative research (e.g., Roumboutsos, 2016), for which careful conceptualization of the PPPs studied is imperative.

Regarding the findings of the theses, perhaps the most salient, overall insight is that PPP-projects do not automatically live up to their prospected advantages. It is not so much the PPP-arrangement (i.e., the contract) by itself that leads to high performance (e.g., ‘added value’ or democratic legitimacy). To a large extent, the success of PPP depends on how its users apply the arrangement in practice, on their skills, commitment, and on their collaborative behavior. This finding is important given the highly polarized debate on PPPs, in which the success or failure of PPP is often considered to be an inherent, intrinsic characteristic of the arrangement. The experiences in the Low Countries show that this is not the case. The dissertations point to the importance of agency, i.e., the ways in which stakeholders implement the contracts, deal with the limitations that inevitably exist, and seize the opportunities that occur (Lowndes and Roberts, 2013). Similarly, issues of legitimacy, democratic accountability, and safeguarding public values may indeed be at stake in PPPs (see Hodge and Greve, 2005), but they can be reconciled if adequately and actively dealt with. The dissertations provide valuable insights into how this can be done.

Of particular interest are the findings regarding ‘soft’ management aspects. Although the dissertations show that contracts and other institutional arrangements are important to reduce transaction costs and to safeguard public values including legitimacy and democratic accountability, the way PPP-projects are managed is crucial to the performance of PPPs. Management should address the relational aspects of partnerships such as collaborative behavior, informal relationships, interaction processes, and trust (see also e.g., Bult and Van Engen, 2018; Verweij, 2018b). In contrast to the dominant philosophy behind the DBFM(O)-model, the PhD-dissertations confirm ideas as put forward by relational contracting and governance literature (see e.g., Edelenbos and Klijn, 2009; Roberts and Siemiatycki, 2015). That is, some of the dissertations are rather critical about the principal-agent relationships that characterize the long-term DBFM(O) infrastructure contracts. They hence advocate more intensive exploration and experimentation with other PPP-models (#D6; #D12; #D14).

Such proposals and the concurrent emphasis on the relational aspects of managing PPPs may of course be the result of the Dutch and Belgian contexts (the Rhineland tradition) in which these PhD-studies have been conducted, as explained earlier. Both practitioners and researchers may have had a bias towards consensual problem solving and collaborative ways of managing projects. In the literature, the Anglo-Saxon tradition, which characterizes the practices in the U.S., the U.K., and Australia, is often contrasted with the Rhineland tradition in Northwestern Europe (see Koppenjan and De Jong, 2017). However, we would argue that collaboration and consensual styles of governance and management are less country-specific than is often argued (e.g., Alam et al., 2014; Smyth and Edkins, 2007). For instance, the recent recognition within the new PF2-policy, of the importance of addressing behavioral and relational issues in managing PPPs, resonates with the observations in the PhD-dissertations regarding the importance of softer, relational ways of managing PPPs.

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